



UNITED STATES PATENT AND TRADEMARK OFFICE

PV
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,607	11/30/2001	Robert B. Staszewski	TI-33176	1142

23494 7590 04.11.2003

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER

CHANG, JOSEPH

ART UNIT PAPER NUMBER

2817

DATE MAILED: 04/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/006,607	STASZEWSKI ET AL.
Examiner	Art Unit	
Joseph Chang	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-30 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 17-30 is/are allowed.
- 6) Claim(s) 1 and 10 is/are rejected.
- 7) Claim(s) 2-9, 11-16 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 30 November 2001 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: a typographical error found in Page 11, line 22. "select circuit 42" should be changed to -- select circuit 40--. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson US Patent No. 6,094,105.

Williamson discloses in figure 15 (and its detail figures 1-18) a frequency synthesizer comprising a digitally controlled oscillator ("a shift resistor coupled to the variable capacitance" see abstract), including a plurality of switched dynamically varied capacitors (8 of figure 3); control circuitry (7 of figure 3) for selectively enabling and disabling the capacitors responsive to an oscillator tuning word (UP, DN); circuitry (logic clock 21 and 22 of figure 15) for dynamically varying (values are varied continually because of feed back loop, see figure 15) which capacitors are enabled for a given oscillator tuning word (UP or DN).

The Williamson reference does not expressly disclose reducing non-linearity caused by slight variance in capacitive values. However, the dynamically varied capacitors are grouped and dynamically controlled, with switched MOSCAPs as shown in figures 3 and 4. It is well known in the art that MOSCAPs may be matched to provide similar dimensions to achieve uniform characteristics. Thus reducing non-linearity and capacitance variance.

Accordingly, It would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that the circuitry would reduce non-linearity caused by slight variance in capacitive values since the MOSCAPs may be matched to provide similar dimensions to achieve uniform characteristics.

Allowable Subject Matter

Claims 17-30 are allowed.

Claims 2-9, 11-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Williamson discloses in figure 15 (and its detail figures 1-18) a frequency synthesizer comprising a digitally controlled oscillator ("a shift resistor coupled to the variable capacitance" see abstract), including a plurality of switched capacitors (8 of figure 3); control circuitry (7 of figure 3) for selectively enabling and disabling the capacitors responsive to an oscillator tuning word (UP, DN). However, one of ordinary skill in the art would not have been motivated to have a circuitry for modulating the DCO by capacitors in second set, as set forth in the claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Landman et al. discloses a DCO using a binary-weighted array of switched capacitors.

Westwick discloses a pulled-crystal oscillator using selectively switching capacitors

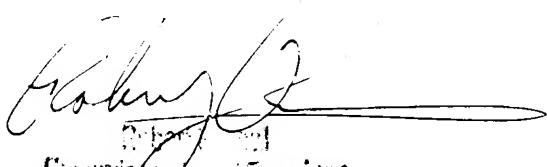
Riley discloses a frequency synthesizer using sigma-delta modulator

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Chang whose telephone number is (703) 308-4800. The examiner can normally be reached on Mon-Thur 0630-1700.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (703) 308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7722 for After Final communications. In addition, the official TC2800 RightFAX numbers are Before-Final (703-872-9318) and After-Final Fax numbers (703-872-9319). These RightFAX numbers provide the fax sender with an auto-reply fax verifying receipt of their fax by the USPTO.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

jc
April 1, 2003


Robert Pascal
Supervisory Patent Examiner
TC2800
4/1/03